

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-028217

(43)Date of publication of application : 02.02.1999

(51)Int.Cl.

A61C 11/00

(21)Application number : 10-131931

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(22)Date of filing : 14.05.1998

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(30)Priority

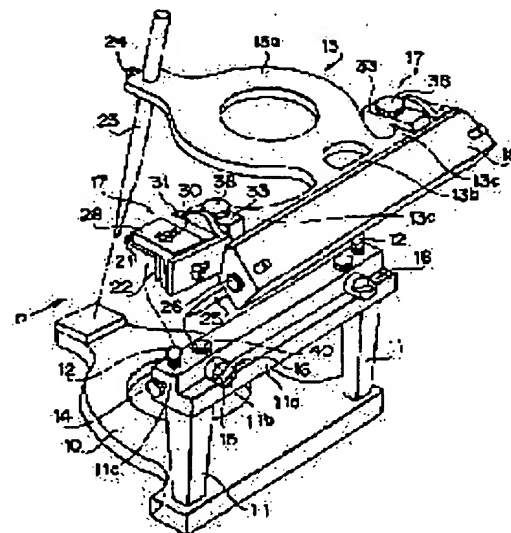
Priority number : 09127377 Priority date : 16.05.1997 Priority country : JP

## (54) COMPLETELY REPRODUCIBLE ARTICULATOR

(57)Abstract:

**PROBLEM TO BE SOLVED:** To enable the movement of organic jaws, particularly occluding movement, to be reproduced faithfully and accurately, including individual differences.

**SOLUTION:** An articulator includes a lower-jaw model member 10, a base 11 erected on the lower jaw, model member 10, two condyles 12 provided to project from the base 11, and an upper-jaw model member 13 connected to the condyles 12 via a condyle box 17 which limits longitudinal, horizontal, and vertical movements. The base 11 is provided with a Bennett lift mechanism 15 which lifts the upper jaw model member 13 from the working condyle 12 independently of the working condyle box 17 of the working condyle 12 when the upper jaw model member 13 is moved sideways in the horizontal direction.



## LEGAL STATUS

[Date of request for examination] 18.05.1998

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 2866084

[Date of registration] 18.12.1998

[Number of appeal against examiner's decision of rejection]

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CLAIMS

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[Claim(s)]

[Claim 1] A mandible model member, the pedestal set up by this mandible model member, and two condylar balls projected and prepared from this pedestal, In the articulator equipped with the maxilla model member connected through KONDAI Luvox which regulates migration of a cross direction, a longitudinal direction, and the vertical direction to these condylar balls Perfect repeatability articulator characterized by establishing the BENETTO lift device which carries out independently the lift of the maxilla model member to the working-side KONDAI Luvox from a condyle-on-the-working-side ball at the above-mentioned pedestal in the case of the divagation of the longitudinal direction of said maxilla model member.

[Claim 2] Said lift device is the perfect repeatability articulator [ equipped with the cam attached in either said pedestal or the maxilla model member possible / accommodation /, and the pin which is formed in another side of said pedestal or a maxilla model member, and contacts said cam ] according to claim 1.

[Claim 3] Perfect repeatability articulator according to claim 1 or 2 in which at least the mandible which location resetting of a lower denture model makes possible to a maxilla model member prepared the resetting device.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the articulator used in order to aim at reappearance of the jaw movement of the body, especially occlusion movement in the case of manufacture of a prosthetic appliance (for example, thing with which anodontias, such as a prosthesis, are compensated).

[0002]

[Description of the Prior Art] The limitation is explained while describing below the articulator known conventionally.

[0003] (1) In something, the jaw is adopting very various ways of moving to the articulator, in order to perform functions, such as eating and talking, and to attain them. Although prosthetic appliance manufacture is one [ main ] on an odontotherapy because of the lost functional recovery, it is important at this time to understand and grasp a motion of a jaw. It is an indispensable matter, in order to be equipped with the manufactured prosthesis good, and for the row of teeth of a vertical prosthesis to carry out occlusion of the reappearance of movement of a jaw good and to enable it to perform chewing motion especially.

[0004] In order individual individuality is very strong and, as for occlusion movement of an individual, to make a good prosthesis, the equipment which measures reappearance of jaw movement division occlusion movement, i.e., the articulator, is indispensable, and many efforts have been put in the development. However, the faithful and exact perfect repeatability articulator according to an individual living body has not yet appeared.

[0005] (2) The location before and after movement of the body should just be specified for reappearance (convention) of movement of not only the condition jaw of occlusion reappearance but a body. That is, when the location after K0 and movement is set to K1 for the location before movement of a certain body K, change of the location of K0 → K1 is movement of the body K. When a jaw is considered to be the rigid body, if the location of three points where the location of a jaw belongs to the rigid body is specified, the whole rigid body, i.e., the location of a jaw, will be specified. Clinically, although three A, B, and C are used, these points are expedient, and if these three points are points on the rigid body which is shown in drawing 26 and with which a jaw is contained, they are good anywhere. A jaw movement will be reproduced, if the movement-before movement back is set to A0, B0, C0, A1, B1, and C1, respectively and A0, A1, B0, B1, C0, and C1 will be specified, as these points are set to A, B, and C and are shown in drawing 27 (refer to the arrow head in drawing 27 ).

[0006] (3) In dentistry, the transverse plane generally used about the vocabulary at the time of describing occlusion movement, a side face, and a flat surface are called the coronal plane, a sagittal plane, and the occlusal surface, as shown in drawing 28 . Moreover, the movement direction side of a jaw is called the working side, and the opposite side is called a balancing side (or balancing side). In addition, although there is an inclination which makes the name of the balancing side an old name recently, on this application specifications, the side concerned is made the balancing side.

[0007] A jaw consists of a maxilla and a mandible, and digestion is performed when each gear tooth carries out occlusion. A maxilla is contained in a cranial bone, a mandible is in the condition hung from the cranium by muscles and \*\*, and a mandible exercises chiefly. A mandible consists of a row of teeth, the corpus mandibulae, and a condyle head, since the condyle head of the A point of drawing is a condyle head by the

side of the movement direction, it is called the condyle on the working side, and the condyle head of a B point is called the condyle of balancing side. The center of a mandible is the incisal section, says the \*\*\*\* amputation stump of the right-and-left central incisor as the incisal point, and says the condyle head central point as a condyle head point. Reappearance of occlusion movement will be prescribed by movement of three points of a condyle head point on either side and the incisal point.

[0008] (4) Movement of a incisal path and a condyle-path mandible is performed in the five directions of [ the side, open RO, and behind the front and right and left ] about movement of a mandible. At this time, as shown in drawing 29 , a condyle head receives regulation of movement according to the gestalt of the glenoid cavity in which a condyle head is settled. The line which connected the condyle head point on either side is called a "intercondylar axis." When both condyle heads carry out gliding motility of the glenoid cavity side top, the incisal point can be rotated centering on the occasional intercondylar axis. The locus of the incisal point is said to the condyle head point list which exercised as the condyle path and an incisal path, respectively.

[0009] b) When carrying out the protrusive-excursion protrusive excursion, as shown in drawing 29 and drawing 30 , a condyle head exercises for a front lower part according to the configuration of a glenoid cavity. If it takes on the basis of a plane of occlusion, it will be about 30 degrees on the average, and at the time of the protrusive excursion, whenever [ inclination-of-sagittal-condyle-path ], it omits and is called the front \*\*\*\*\* grade. Whenever [ front inclination-of-sagittal-condyle-path ] differ by the condyle head on either side in many cases. The incisal point is regulated by the gestalt of the incisor of a maxilla, and exercises for a front lower part too, and a clinical certified value is 10 degrees to a plane of occlusion.

[0010] c) As shown in lateroduction drawing 31 , the condyle of balancing side exercises greatly to the condyle on the working side not carrying out small deer movement of the case of the lateroduction (a jaw should exercise for the right or the left). The condyle of balancing side exercises caudad a front according to the configuration of a glenoid cavity as well as the time of the protrusive excursion, calls whenever [ inclination-of-sagittal-condyle-path / at that time ] whenever [ side inclination-of-sagittal-condyle-path ], and, generally calls the difference of those include angles the Fischer angle more greatly than front condylar guide inclination (it may be about 15 degrees on the average).

[0011] Moreover, it is known at the time of the lateroduction that the condyle on the working side will exercise for the method of outside in the direction of the working side. Movement to the method of this outside is connected with that discoverer's name, and is called the "Bennett movement." Since a mandible is the thing of one and the condyle of balancing side will be drawn in the inner direction if the condyle on the working side moves to the method of outside, the condyle of balancing side will exercise for the method of the inside of front Shimo as a result. At this time, while a sagittal direction is received, it calls the "Bennett angle", the include angle, i.e., the lateral condyle path angle, to a way.

[0012] (5) If it can specify which each point of three points (a right-and-left condyle head and incisor) moves to the upper and lower sides, right and left, and order about a movement convention of a mandible, movement of the whole mandible can be specified. Moreover, the movement direction of a certain point is the direction of an intersection of two flat surfaces which regulate the movement direction of the point. That is, in order to specify the movement direction of a certain point, two flat surfaces are required, and it is enough.

[0013] Hereafter, the flat surface which specifies each point of three points (a right-and-left condyle head and incisor) is described.

[0014] As stated also in advance, movement of a mandible is performed to opening, the front, back, the side (working side and balancing side), and back. Among this, since open RO movement is movement which occlusion opens, it separates from it from the requirements for the articulator. Moreover, if the convention side of the protrusive excursion will be used and back movement will be carried out from a convention flat surface, the flat surface which specifies three movements, the front, the working side, and the balancing side, should just be acquired. Therefore, since each point is a reason which needs two flat surfaces per movement, it needs six flat surfaces for each point to reproduce three movements. Moreover, if the location of both the condyle head point is specified, the right and left order-location of the incisal point is relatively specified from both the condyle head point, and since the amount of vertical openings is prescribed by contact of a way person's arbitration, or a vertical model, the object of consideration will become requiring only movement of a right-and-left condyle head about reappearance of a jaw movement. Furthermore, since the thing which is the need on the occasion of the protrusive excursion requires only

one flat surface that specifies whenever [ inclination-of-sagittal-condyle-path ], five flat surfaces are only needed actually. Moreover, if the location of both the condyle head point is specified, the location of the incisal point is relatively specified from both the condyle head point, and since a setup of the amount of open RO of the incisal point is arbitrary, the object of consideration will become requiring only movement of a right-and-left condyle head about jaw movement reappearance. As the things which are need for reappearance of a jaw movement are only three movement reappearance, the condyle head front, the balancing side, and the working side, in the articulator and point \*\* was carried out for that purpose after all, since one flat surface is available for a front convention, condyle head movement on either side will just specify it according to five convention flat surfaces respectively.

[0015] Moreover, a condyle head three dimension movement convention element is as follows.

[0016]

Vertical convention Protrusive condyle path condyle-path ramp inside-and-outside convention Convention before and after the Bennett plate Rear wall (6) The conventional device and its conventional trouble drawing 32 of the articulator are in the condition at the time of moving a jaw to the right. This movement is prescribed by whenever [ balancing-side inclination-of-sagittal-condyle-path ], and two include angles (flat surface) of a balancing-side lateral condyle path angle (Bennett angle) although the condyle of balancing side exercises for the method of the inside of front Shimo. That is, an inside-and-outside convention is specified for a vertical convention of the condyle of balancing side by the Bennett angle by whenever [ balancing-side inclination-of-sagittal-condyle-path ] again.

[0017] On the other hand, the condyle on the working side specified the convention before and after remaining, and the vertical convention like drawing 32 by the conventional articulator with the rear wall and the working-side inclination-of-sagittal-condyle-path plate, extruding to the method of outside for the Bennett movement (an inside-and-outside convention is prescribed by the Bennett angle of the condyle of balancing side). That is, as shown in drawing 32, four plates (four include angles) prescribed the lateroduction.

[0018] However, when it moves not only to the right but to right and left, what you are going to make attain the "perfect repeatability articulator" is not so easy. Although old consideration was the case where a jaw exercised for the right, it is because the same adjustment as having considered in the top must be carried out also when a jaw exercises for the left this time. Whenever [ working-side inclination-of-sagittal-condyle-path / which was used for the vertical convention when the right is the condyle on the working side ] must be used as whenever [ balancing-side inclination-of-sagittal-condyle-path ], when the right becomes the condyle of balancing side this time. Generally, since it differs, with one inclination-of-sagittal-condyle-path plate, whenever [ working-side inclination-of-sagittal-condyle-path ], and whenever [ balancing-side inclination-of-sagittal-condyle-path ] can double whenever [ vertical convention / of an activity condyle head / and inclination-of-sagittal-condyle-path / of a balanced condyle head ], and cannot express it. It cannot be made satisfied with one inclination-of-sagittal-condyle-path plate about both cases the working side and by the side of parallel. It is because the flat surface of one sheet is not made as for concomitant use \*\*\*\*\* to a different movement convention. Therefore, the articulator is adjusted a sake [ in the case of moving a mandible to right-hand side ], a prosthesis is adjusted, and it had to be made to have had to adjust the articulator again subsequently to left-hand side in the conventional articulator a sake [ in the case of moving a mandible ]. For this reason, since there is a trouble that readjustment takes excessive time amount, the \*\*\*\*\* grade at the time of an activity diverted the thing at the time of a balance, and it has substituted for it.

[0019] the approach of dividing the approach (i) inclination-of-sagittal-condyle-path plate which specifies whenever [ inclination-of-sagittal-condyle-path / at the time of - balance ] using one inclination-of-sagittal-condyle-path plate at the time of an activity -- here, in order to overcome this crisis, the divided inclination-of-sagittal-condyle-path plate as shown in drawing 33 (a) which separates the inclination-of-sagittal-condyle-path plate at the time of an activity and a balance at the time of each movement, and (b) may be proposed. However, by this approach, when the inclination at the time of an activity is stronger than the inclination at the time of a balance, Slot D is generated and smooth condyle head movement cannot be reproduced so that drawing 33 (c) and (d) may see. That is, an inclination-of-sagittal-condyle-path plate is applicable only to one [ a vertical convention of the condyle on the working side, a convention paddle gap of the amount of descent of the condyle of balancing side, or ] convention. Although a reason is mentioned later, a \*\*\*\*\* ramp will say that it is only wise to use it for a convention of the amount of

descent of the condyle of balancing side for convenience here.

[0020] (ii) It is the approach the articulator currently called the approach current full adjustable articulator made to incline as a medial axis in the condyle-path axis of tilt has adopted the inclination-of-sagittal-condyle-path plate. The condyle-path ramp of one sheet can prescribe two include angles, whenever [ balancing-side inclination-of-sagittal-condyle-path ], and whenever [ working-side inclination-of-sagittal-condyle-path ], by using together the rotation inclination (it being henceforth called the Fischer slide) of the condyle-path (M of drawing 7 ) ramp which made the medial axis the inclination-of-sagittal-condyle-path shaft which a rotation inclination, and the condyle-path ramp and sagittal plane of the condyle-path (N of drawing 7 ) ramp made into the medial axis cross [ intercondylar axis ] in an inclination-of-sagittal-condyle-path plate so that it may see by drawing 7 . However, there are the following problems in this approach.

[0021] (7) Point that the conventional articulator should be improved (a) For full reappearance of a jaw movement, the protrusive excursion must also be reproduced about reappearance of the Fischer angle (Fischer angle). This is a trouble. Although it exercises ahead, a condyle head on either side descending with whenever [ inclination-of-sagittal-condyle-path ] when a jaw exercises ahead, as mentioned above, generally whenever [ front inclination-of-sagittal-condyle-path / at the time of the protrusive excursion ] differs from whenever [ inclination-of-sagittal-condyle-path / at the time of the lateroduction ]. Therefore, it is not made although a condyle-path ramp must express three condylar guide inclination, \*\* balancing-side condylar guide inclination, \*\* working-side condylar guide inclination, and \*\* front condylar guide inclination. Although it said that two, \*\* balancing-side condylar guide inclination and \*\* working-side condylar guide inclination, can be first expressed by using the Fischer slide, this approach can be used also for expressing two, \*\* balancing-side condylar guide inclination and \*\* front condylar guide inclination. It is wise to take which two or to express two, \*\* balancing-side condylar guide inclination and \*\* front condylar guide inclination, but. A vertical convention of the left-behind condyle on the working side needs to be prescribed by the independent device from a condyle-path ramp.

[0022] (b) By the conventional articulator, back movement was not able to be carried out about reappearance of back movement. The arts and sciences which made the starting point the last abdication which cannot retreat suited the background more than this at it. however, a living body -- the fact -- recession is also performed though small. There are fairly many cases with which it is thought that the harmful prosthetic appliance which carries out occlusion contact is the cause in back movement among the patients of the temporomandibular arthrosis. In having used the conventional articulator for the dentist side, since the check is impossible, unless it equips the oral cavity with a prosthetic appliance, it is not known whether there is any prematurity by back movement. It is considered to be significant things whether back movement can be carried out in a prosthetic appliance manufacture phase on the articulator, and there is any occlusion contact harmful at the time of back movement and that a check is made.

[0023] (8) Although there are various full adjustable articulators and there is the description separately in details conventionally [ conclusion ], it is \*\*\*\*(ing) in a fundamental principle and a convention of the following five elements is possible.

[0024] (b) A convention of condylar distance (the 1st element)

(b) Convention vertical convention of the condyle of balancing side -- \*\* inclination-of-sagittal-condyle-path plate (the 2nd element)

Inside-and-outside convention -- \*\* \*\* network plate (the 3rd element)

(c) Order [ convention ] convention of the condyle on the working side -- \*\* rear wall (the 4th element)

Vertical convention -- Inclination-of-sagittal-condyle-path shaft rotation inclination of \*\* inclination-of-sagittal-condyle-path plate (Fischer slide) (the 5th element)

There is no condyle head convention at the time of the protrusive excursion into the above-mentioned convention. Since two, balancing-side condylar guide inclination and working-side condylar guide inclination, were made to specify to a condyle-path ramp, the 3rd front condylar guide inclination cannot be specified. Since it is not related to a convention of condyle head movement at any rate even if it carries out the measurement convention of between a condyle head if a convention of the condylar distance of the first element of the above is a convention of a lateroduction center-of-rotation point, the five above-mentioned element cannot but be real 4 element.

[0025] That is, reappearance of perfect condyle head movement cannot be performed from four above-mentioned conventions. If it says [ which remains ] of which part trouble is caused to reappearance by lack

of one convention, since a convention of front condylar guide inclination cannot be performed, the protrusive excursion is unreproducible. Some inclination-of-sagittal-condyle-path plates are deleted actually, or padding etc. adds and is adjusted. This cause is because the rotation inclination (Fischer slide) which made the medial axis the inclination-of-sagittal-condyle-path shaft of an inclination-of-sagittal-condyle-path plate has been used for a vertical convention of the condyle on the working side.

[0026]

[Problem(s) to be Solved by the Invention] As stated above, in the conventional articulator, the protrusive excursion of a living body's jaw was unreproducible even by the articulator called full adjustable articulator. Furthermore, since the prosthetic appliance manufactured using the conventional semiadjustable articulator did not harmonize with occlusion movement of a living body, there was much what gives displeasure. This invention was made in view of the above-mentioned situation, and aims at offering the perfect repeatability articulator which can reproduce faithfully and correctly all movements, especially occlusion movements of a living body's jaw including the individual difference.

[0027] Moreover, since the articulator presents a therapy, when it not only reproduces a living body's jaw movement faithfully and correctly, but it is diagnosed that faithful and exact reappearance brings a living body a failure on the contrary, at least the mandible made into a new ideal in the articulator must be able to make a list appear the movement format of a jaw. at least the mandible which makes it possible to reset on the articulator at arbitration in the location of the mandible diagnosed as this invention being the the best for a living body from the location of the mandible model which it was made in view of the above-mentioned clinical situation, and was attached faithfully with a living body's present condition and correctly, and can return to the present location also by need \*\*\*\*\* 5 aims at offering a resetting function.

[0028]

[Means for Solving the Problem] That the above-mentioned purpose should be attained invention of claim 1 A mandible model member, the pedestal set up by this mandible model member, and two condylar balls projected and prepared from this pedestal, In the articulator equipped with the maxilla model member connected through KONDAI Luvox which regulates migration of a cross direction, a longitudinal direction, and the vertical direction to these condylar balls It is the perfect repeatability articulator which prepared the BENETTO lift device which carries out independently the lift of the maxilla model member to the working-side KONDAI Luvox in the above-mentioned pedestal from the condyle-on-the-working-side ball on the occasion of the divagation of the longitudinal direction of said maxilla model member.

[0029] Invention of claim 2 is the perfect repeatability articulator [ equipped with the pin which said lift device is formed in another side of the cam attached in either said pedestal or the maxilla model member possible / accommodation /, and a said pedestal or a maxilla model member, and contacts said cam ] according to claim 1.

[0030] Invention of claim 3 is the perfect repeatability articulator according to claim 1 or 2 in which at least the mandible which enables location resetting of a lower denture model to a maxilla model member prepared the resetting device.

[0031]

[Embodiment of the Invention] The place which asserts the perfect repeatability articulator of the gestalt of this operation in claim 1 is characterized [ big ] by enabling it that 1st the inclination-of-sagittal-condyle-path plate made the independent device vertical accommodation of the condyle on the working side, and to reproduce the Fischer angle to the 2nd. Clinically, since the temporomandibular joint and a mandible are not in normal physical relationship from the beginning but the physical relationship of a vertical jaw is wrong in many cases, the place asserted in claim 3 is characterized [ big ] by correspondence being possible, when the location of an up-and-down jaw must be corrected during articulator use.

[0032] Hereafter, the perfect repeatability articulator of one gestalt of operation of this invention is explained based on an accompanying drawing.

[0033] I. Structure 1 of the articulator As shown in a schematic diagram 1 , the articulator The tabular mandible model member 10 fundamentally equipped with a lower prosthesis (not shown), The pedestal 11 of the portal set up by this mandible model member 10, and two condylar balls 12 projected and prepared from beam section 11a of this pedestal 11, To these condylar balls 12, it has the tabular maxilla model member 13 which is connected in a cross direction, a longitudinal direction, and the vertical direction through KONDAI Luvox 17 which regulates migration and which is equipped with an up prosthesis (not



shown), and an outline configuration is carried out.

[0034] Although a condylar ball 12 imitates the condyle head of a living body's mandible, it does not necessarily need a living body's condylar distance. It has become cylindrical [ the end face section of a condylar ball 12 ], and the graduation is turned off by the cylindrical section. It is inserted in the hole formed in the pedestal 11, and while adjusting the amount of insertion, the height of a condylar ball 12 can be adjusted by fixing with a screw 14.

[0035] The maxilla model member 13 is equipped with body section 13a, lobe 13c formed in the both sides of end face section 13b of this body section 13a at one, and the block member 18 of the cross-section \*\*\*\* trapezoidal shape fixed to end face section 13b, and is constituted.

[0036] The incisal guide pin 23 which regulates migration in the lower part of the maxilla model member 13 is attached in the point of body section 13a by slight bolting and looseness of a screw 24 possible [ adjustment of the wire extension ].

[0037] 2 ) -- KONDAI Luvox 17 is attached in both lobes 13c of the KONDAI Luvox maxilla model member 13 free [ attachment and detachment ], and this KONDAI Luvox 17 contacts the condylar balls 12 and 12 on either side, and regulates migration of a cross direction, a longitudinal direction, and the vertical direction for the maxilla model member 13 in the case of a jaw movement.

[0038] As shown in drawing 2 , KONDAI Luvox 17 was formed in the \*\* network angle baffle plate 20 which enables adjustment of a \*\* network angle in contact with the condylar ball 12 of the balancing side, this \*\* network angle baffle plate 20, and one, and is equipped with the inclination-of-sagittal-condyle-path baffle plate 21 which enables adjustment of whenever [ inclination-of-sagittal-condyle-path ], and the rear wall member 22 whose adjustment of the movement-before and after condylar ball 12 of working side direction is enabled.

[0039] First, the bearing block 33 is formed in one, and the shaft 32 prepared in side 31b inside the L character-like KONDAIRU member 31 is inserted in the bearing block 33, and both lobes 13c of the maxilla model member 13 is equipped free [ attachment and detachment ] so that it may become possible for the KONDAIRU member 31 bolting and by loosening to adjust the angle of rotation about the screw 38 screwed by the bearing block 33.

[0040] The L character-like supporter material 28 is formed in side 31a by the side of the back of this KONDAIRU member 31 free [ rotation justification ]. That is, through tube 31c is formed in side 31a of the KONDAIRU member 31, a screw 34 is inserted in through tube 28c and through tube 31c from a before [ the supporter material 28 ] side, and a wing nut 35 is screwed in the screw 34. This is supporting the supporter material 28 pivotable to the circumference of the shaft of a screw 34.

[0041] The Bennett-angle baffle plate 20, the inclination-of-sagittal-condyle-path baffle plate 21 formed in one, and the rear wall member 22 are attached in this supporter material 28 free [ include-angle adjustment ] with a screw 29 and the butterfly screw 30.

[0042] That is, extension section 21a is formed in the inclination-of-sagittal-condyle-path baffle plate 21 in parallel with a plate surface, extension section 22a is formed in a right angle at the plate surface, and through tubes 21b and 22b are formed in the rear wall member 22 at each extension sections 21a and 22a corresponding to mutual. On the other hand, corresponding to said through tubes 21b and 22b, abbreviation semicircle-like through tube 28b is formed in surface 28a of the supporter material 28, and these are united with it by inserting a screw 29 in each through tubes 21b, 22b, and 28b from a drawing Nakashita side, and screwing a wing nut 30 in a screw 29.

[0043] As a screw 29 is shown in drawing 3 (b), it has head 29a and shank 29b formed successively by this. Screw section 29c is formed only near the point of a shank, 29d of cut sections into which the whole surface of screw section 29c was cut is formed, and 29d of the cut section because through tube 28b of the supporter material 28 fits in Rotation of screw 29 the very thing is prevented, and only the inclination-of-sagittal-condyle-path baffle plate 21 and the rear wall member 22 enable it to rotate to the supporter material 28.

[0044] Moreover, the eye hiding plate 36 is being fixed to the inferior surface of tongue of the inclination-of-sagittal-condyle-path baffle plate 21 with the screw 37, this covered head 29a of a screw 29, and it has prevented a condylar ball 12 and a screw 29 contacting.

[0045] It is this KONDAI Luvox's 17 loosening a screw 38, and adjusting angle of rotation of the KONDAIRU member 31. By being able to adjust the \*\*\*\*\* grade of the inclination-of-sagittal-condyle-path baffle plate 21, and adjusting angle of rotation of the supporter material 28 with a screw 34 and the butterfly



screw 35 A rear wall angle can be adjusted by rotating the rear wall member 22, while being able to adjust the Fischer slide and being able to adjust a \*\* network angle by rotating the Bennett-angle baffle plate 20 around a screw 29 further.

[0046] Drawing 6 is explained [ that the Fischer angle is discovered with this device and ].

[0047] Drawing 6 is a thing showing the condyle head which exercises the inside of a glenoid cavity, and is drawing which showed movement of the condylar ball in KONDAI Luvox speaking of the articulator, and looked at the left temporomandibular joint or KONDAI Luvox from the method of before top left slanting.

[0048] The inclination-of-sagittal-condyle-path plate J presupposes that it inclines to the coronal plane (rotation), relatively, if a condyle head carries out front migration from F at G in accordance with the inclination of the inclination-of-sagittal-condyle-path plate J, it will move to G1 from F1 in the occlusal surface, and it will move it to G2 from F2 by the sagittal plane.

[0049] Next, in the case of the balanced lateroduction (it moves to migration, i.e., the left, rightward by a diagram), the condyle head of the balancing side moves to H from F. In this case, in the occlusal surface, it becomes migration of F1 to H1, and the include angle of a line (F1 →G1) and a line (F1 →H2) serves as a \*\* network angle. Moreover, in a sagittal plane, it moves to H2 from F2, and from the path in the case of the protrusive excursion (F2 →G2), the path which sinks deeply in accordance with inclination is taken, and the \*\*\*\*\* grade becomes large. That is, differing from the line (F2 →H2) of the lateroduction is known to the line at the time of the protrusive excursion (F2 →G2), the difference of this line (F2 →G2) and a line (F2 →H2) is called the Fischer angle, and, clinically, it was said above that that average is made into 5 degrees.

[0050] 3 ) -- BENETTO lift this invention -- the function of this KONDAI Luvox 17 -- in addition, the condyle-on-the-working-side ball 12 establishes the \*\* network lift device 15 which can carry out a vertical location convention independently at the time of the lateroduction, i.e., when a condylar ball 12 glides over the inclination-of-sagittal-condyle-path baffle plate 21 top of balancing-side KONDAI Luvox 17, contacting, without being regulated by the inclination-of-sagittal-condyle-path baffle plate 21 of working-side KONDAI Luvox 17. In this case, the condyle-on-the-working-side ball 17 deviates from regulation of an inclination-of-sagittal-condyle-path plate, and after it carries out the condyle-on-the-working-side ball of the maxilla model member 13 of the working side, it comes floating. This is made a BENETTO lift device in a \*\* network lift, a call, and this device.

[0051] It describes what kind of semantics this has clinically.

[0052] When the condyle head of the balancing side exercises in accordance with the inclination of the inclination-of-sagittal-condyle-path plate J and the Bennett plate K, although it is various, in the case of occlusion natural in upper and lower sides, it exercises for the lower part instead of the upper part in general by the individual in [ the condyle head of the working side ] order.

[0053] That this condyle on the working side exercises below in general is the phenomenon which Bennett discovered, and it is a phenomenon which I call BENETTO lift movement. If it says in Bennett's words, what "is exercised as compared with the case where the lateroduction is carried out without a tooth's carrying out occlusion so that a condyle head may separate from a glenoid cavity when the lateroduction is carried out, while an up-and-down tooth carries out occlusion" will be pointed out. This is in the condition which the stress at the time of the lateroduction joined, and if there is a tooth, that a condyle head does not hit a glenoid cavity directly, i.e., existence of a tooth, means linking with protection of the temporomandibular joint directly.

[0054] Drawing 1 , drawing 4 , and drawing 5 explain this \*\* network lift device 15.

[0055] This \*\* network lift device 15 consists of a cam 16 belonging to the mandible model section prepared in the pedestal 11 behind a condylar ball 12, and a pin 25 belonging to the maxilla model section prepared in the both ends of the block member 18 behind the maxilla model member 13.

[0056] First, slot 11b of the shape of two radii and slot 11c of the shape of a cylinder formed successively to this are formed in the tooth back of beam section 11a of a pedestal 11, the cylinder-like cam 16 can be attached free [ rocking to the circumference of an axial center ] in this slot 11b and 11c, and a cam 16 can be fixed now to a pedestal 11 by tightening the screw 40 screwed in beam section 11a. The cam 16 is equipped with cam side 16b which cut and was formed by lacking in a tangent location which always touches at the tip of the pin 26, even if it contacts at body section 16a of the shape of a cylinder inserted in slot 11c, and the tip of a pin 26 and body section 16a rotates, as shown in drawing 5 . The tip of a pin 26 is formed spherically and the core of the ball in accordance with the center of rotation of body section 16a

by namely, the thing formed in the location where cam side 16b becomes a tangent to the semicircle at the tip of the pin 26 Even if it rotates body section 16a, cam side 16b does not move up and down for a tangent location, and the pin 26 which contacts the cam side 16b can reproduce adjustment of the amount of lifts correctly. The boundary section of body section 16a and cam side 16b enables 0mm – about 4mm protrusion from the external surface of a pedestal 11. This is because it can be made to perform back movement of the maxilla model member 13 of the working side. And the include angle of cam side 16b can be changed now by rotating a cam 16 to the circumference of an axis.

[0057] A pin 25 is attached in the both ends of the block member 18 by slight bolting and looseness of a screw 26 possible [ adjustment of the wire extension ], and as shown in drawing 4 , cam side 16b of the cam 16 prepared in beam section 11a of a pedestal 11 is contacted. The lift device of this invention is constituted in a pin 25 and a cam 16.

[0058] I will describe what kind of function such a device discovers.

[0059] In case the lateroduction is carried out, the cam 16 of the mandible section of the balancing side and the pin 25 of the maxilla section leave the condylar ball 12 of the balancing side in order to advance ahead [ inner Shimo ], contacting the inclination-of-sagittal-condyle-path plate top of the maxilla section. On the other hand, the working-side cam 16 moves outside to the maxilla section at the condyle-on-the-working-side ball 12 list of the mandible section, and the working-side pin 25 moves to the KONDAI Luvox 17 list of the maxilla section inside to the mandible section relatively. At this time, when the vertical convention include angle of working-side cam side 16b is larger than the induction include angle of a working-side condyle-path ramp, the working-side pin 25 moves inside, contacting that cam side 16b contacted. In this case, relatively, the condyle-on-the-working-side ball 12 will fall caudad from the maxilla section, and will deviate and surface from the inclination-of-sagittal-condyle-path baffle plate 21 of KONDAI Luvox 17 of the working side rather than it is based on induction of a condyle-path ramp.

[0060] In addition, it is decided by the actual condition and the treatment policy of the joint section of a living body whether which makes it deviate and rise to surface. Depending on a rare case, the condyle on the working side may be larger than whenever [ inclination-of-sagittal-condyle-path / at the time of the condyle head balance ], and the deep subsidence to a glenoid cavity may be shown. In that case, although it is possible to use this articulator which shortened distance between condylar balls, for a living body, the deep subsidence to such a glenoid cavity is dangerous reappearance, and induction is given by the condyle-path ramp at the time of the balance which is not sunk clinically.

[0061] that is, the thing for which a BENETTO lift device and the Fischer slide are introduced into a protrusive-excursion list in reappearance of the lateroduction on either side in this invention -- whenever [ inclination-of-sagittal-condyle-path / of KONDAI Luvox on either side ] -- accommodation of the Bennett angle and a rear wall include angle -- mutual -- not infringing -- each -- it enables it to adjust independently

[0062] II The articulator deals with it and drawing 1 - drawing 6 explain this below.

[0063] 1) A lower prosthesis model is attached through gypsum fibrosum, and attach the mounting plate on the mandible model member 10, fix a bottom prosthesis model, attach in the inferior surface of tongue of the maxilla model member 13 the mounting plate (not shown) which attached the upper prosthesis model through gypsum fibrosum similarly, and fix a top prosthesis model to initialization place \*\* and a mounting plate (not shown).

[0064] Then, as shown in drawing 1 , KONDAI Luvox 17 formed in the both sides of the maxilla model member 13 is laid on each condylar ball 12 in which it was prepared by the pedestal 11. Under the present circumstances, as shown in drawing 5 , it lays on cam side 16b of the cam 16 in which the tip of two pins 25 which project from the block member 18 which is the BENETTO lift device 15 was established by the pedestal 11.

[0065] 2) decision (1) of the amount of preparation i adjustments of the articulator the pantograph method -- here, with a living body, there is individual difference in the configuration of a jaw, magnitude, or occlusion movement, and if movement of a living body's jaw is not reproduced faithfully, adjustment of a perfect prosthesis cannot be performed. Then, adjustment of each angle of rotation of the KONDAIRU member 31 of KONDAI Luvox 17 and 17 on either side, the inclination-of-sagittal-condyle-path baffle plate 21, the supporter material 28, the Bennett-angle baffle plate 20, and the rear wall member 22 Beforehand, measure a motion of a living body's mandible with a tracer, and it is carried out based on the measurement result. He determines the Fischer slide, the Bennett angle, and a rear wall angle, and is trying to adjust

movement of a jaw whenever [ on either side inclination-of-sagittal-condyle-path ] according to individual difference by adjusting KONDAI Luvox 17 and 17 on either side based on it.

[0066] ii) Decision (2) of the amount of adjustments the row of teeth of check-bite method point \*\* and the upper and lower sides -- the articulator is equipped with the condition of having carried out occlusion of the model at least at the core. Equipping by the split cast method is desirable. A face baud is unnecessary if the pantograph method is not carried in at the point in the case of a check-bite method. The physical relationship of the row of teeth of the upper and lower sides after movement is extracted by gypsum fibrosum or resin, and five flat surfaces are adjusted in the following order in order to make it reappear on the articulator.

[0067] 1. In the cam \*\*\*\* articulator of a Fischer slide 3. Bennett plate 4. working-side rear wall 5. working-side BENETTO lift of the right-and-left inclination-of-sagittal-condyle-path plate 2. balancing-side condyle-path ramp at the time of the protrusive excursion, consecutive adjustment does not spoil adjustment of precedence like the conventional full adjustable articulator.

[0068] 3) adjustment of various movements and KONDAI Luvox -- and -- rough -- KONDAI Luvox 17 of the maxilla model member 13 -- the maxilla model member 13 -- each condylar ball 12 -- receiving -- order and right and left -- it is made to move up and down, and occlusion of the prosthesis is carried out, gear, observe a condition, and adjust a prosthesis.

[0069] (a) Front migration of the protrusive-excursion maxilla model member 13 is performed by moving, after the condylar ball 12 on either side has touched along with the arrow-like grade of the inclination-of-sagittal-condyle-path baffle plate 21 of KONDAI Luvox 17 and 17 on either side.

[0070] (b) Although a condylar ball 12 moves by the balancing side where KONDAI Luvox 17 could fly inclination-of-sagittal-condyle-path baffle plate 21 and the network angle baffle plate 20 is touched when performing lateroduction side commutation The working side describes independently the inclination-of-sagittal-condyle-path baffle plate 21 of KONDAI Luvox 17 an activity side. According to the network lift device 15 That is, as a result of a pin's 25 moving in contact with cam side 16b of a cam 16, \*\* network lift movement can be performed because the \*\*\*\*\* inclination baffle plate 21 separates and goes up from a condylar ball 12. Under the present circumstances, the rear wall member 22 of KONDAI Luvox 17 of the working side regulates the movement magnitude to the method of order in contact with a condylar ball 12, even if the inclination-of-sagittal-condyle-path baffle plate 21 separates from a condylar ball 12.

[0071] Moreover, although it stated the balance side and the pin 25 and cam 16 which are the network lift device 15 have contacted at the time of initiation of the lateroduction, it does not function in order to separate with the lateroduction.

[0072] 4) Explain other KONDAI Luvox (example a) shuttle-race-back molds, next the gestalt of other operations of this invention. The same agreement is attached and explained to the same component as the gestalt of said operation.

[0073] Drawing 8 shows the modification of KONDAI Luvox 18.

[0074] Although one place of a screw 29 and a wing nut 30 showed the example which fixes the inclination-of-sagittal-condyle-path baffle plate 21 and the \*\* network angle baffle plate 20, and the rear wall 22 to the supporter material 28 with drawing 1 and KONDAI Luvox 18 of 2, it enables it to fix by two places with this gestalt.

[0075] First, the inclination-of-sagittal-condyle-path baffle plate 21 and the \*\* network angle baffle plate 20, and the rear wall 22 Support pivotable to the supporter material 28 with the screw 41 inserted in through tubes 21b, 22b, and 28b, and on both sides of a screw 41, form the falcation through tubes 42 and 43 in surface 28a of the supporter material 28, and it corresponds to it at these through tubes 42 and 43. Screw holes 21c and 22d are formed in extension section 22c of the \*\*\*\*\* inclination baffle plate 21 and the rear wall member 22, screws 44 and 45 are inserted in the three Tachimori each-like through tubes 42 and 43, and it is made to screw in screw holes 21c and 22d.

[0076] Thereby, if the head of screws 44 and 45 is moved along with through tubes 42 and 43, respectively, the inclination-of-sagittal-condyle-path baffle plate 21 and the \*\* network angle baffle plate 20, and the rear wall 22 can rotate a screw 41 as a core, it can fix by bolting screws 44 and 45, and more positive immobilization can be performed. In addition, if the graduation is attached along with through tubes 42 and 43 as shown in drawing, a \*\* network angle and a rear wall angle can adjust easily with a graduation.

[0077] (b) KONDAI Luvox 18 shown in cylinder slide mold drawing 9 Use the side face of the supporter material 28 as 28d of circular faces, and the inside of the KONDAIRU member 31 is used as 31d of circular

faces corresponding to 28d of circular faces. It arranges free [ sliding ] by these circular faces 28d and 31d, and it \*\*\*\* to the screw hole (not shown) which formed through tube 31e, inserted the screw 50 and was formed in through tube 31e at 28d of circular faces of the supporter material 28, and is made to fix to the KONDAIRU member 31.

[0078] With this gestalt, the location of the supporter material 28 to the KONDAIRU member 31 can be rotated around the virtual shaft which intersects perpendicularly with a shaft 32 mostly, and while being able to adjust the Fischer angle, it can be made to ensure that immobilization by sliding the supporter material 28 along with 31d of circular faces of the KONDAIRU member 31.

[0079] (c) KONDAI Luvox 17 shown in crab scissors type drawing 10 - drawing 13 shows the modification of the supporting structure of the \*\*\*\*\* inclination baffle plate 61, the \*\* network angle baffle plate 60, and the rear wall member 62.

[0080] That is, as shown in drawing 11 and drawing 12, slot 61a and overhang section 61b are formed in the inclination-of-sagittal-condyle-path baffle plate 61, and the Bennett-angle baffle plate 60 is formed in the side face of the inclination-of-sagittal-condyle-path baffle plate 61 at one. Extension section 62a inserted in slot 61a free [ \*\*\*\* ] and overhang section 62b jutted out over the method of outside are formed in the rear wall member 62.

[0081] As shown in drawing 13, through tube 61c is formed in the upper part corresponding to slot 61a of the inclination-of-sagittal-condyle-path baffle plate 61, and 61d of tapped holes is formed in the part which countered the lower part with through tube 61c. Through tube 62c is formed in extension section 62a of said rear wall member 62 corresponding to through tube 61c and 61d of screw holes. The screw 63 is made pivotable as a core for the rear wall member 62 to the inclination-of-sagittal-condyle-path baffle plate 61 by inserting a screw 63 into through tube 61c and through tube 62c, and screwing in 61d of screw holes.

[0082] On the other hand, the KONDAIRU member 64 is supported by the maxilla model member pivotable by the shaft 65. Circular face 64a is formed in the KONDAIRU member 64, and the supporter material 66 is supported by this circular face 64a pivotable. That is, circular face 66a corresponding to circular face 64a is formed in side plate 66b of the supporter material 66, and it can rotate by sliding the supporter material 66 by the circular face 64a concerned. The supporter material 66 can be fixed now to the KONDAIRU member 64 by the screw (not shown) and the wing nut 67. \*\*\*\* 66c is formed in side plate 66b of the supporter material 66 at one, predetermined distance alienation is carried out with this top-plate 66c, 66d of overhang sections projects and they are formed. Screw hole 66e is penetrated and formed in top-plate 66c corresponding to 66d of overhang sections. Between 66d of overhang sections, and top-plate 66c, overhang section 61b of the \*\*\*\*\* inclination baffle plate 61 and overhang section 62b of the rear wall 62 are inserted. By \*\*\*\*(ing) a screw 68 to the screw hole formed in top-plate 66c, overhang section 61b of a projection and the inclination-of-sagittal-condyle-path baffle plate 61 and overhang section 62b of the rear wall member 62 are pinched for the tip of a screw 68 between a screw 68 and 66d of overhang sections from screw hole 66e, and the inclination-of-sagittal-condyle-path baffle plate 61 and the rear wall 62 are supported by the supporter material 66. Therefore, the inclination-of-sagittal-condyle-path baffle plate 61 and the rear wall 62 are pivotable considering the part which the screw 68 is pressing as a core. 66f of through tubes in which said screw 63 is inserted is formed in top-plate 66c of the supporter material 66.

[0083] (d) KONDAI Luvox 17 shown in 1 shaft convention mold drawing 14 combines the element of the gestalt of the above-mentioned implementation. That is, while supporting the supporter material 31 free [ rotation ] by the shaft 32 to a maxilla model member, 28d of curved-surface sections formed in 31d of curved-surface sections formed in the KONDAIRU member 31 at the supporter material 28 is made to contact free [ sliding ], and the supporter material 28 is supported to the KONDAIRU member member 31. The rear wall member 22 is connected with the supporter material 28 free [ rotation ] by inserting a screw 70 in through tube 22b formed in through tube 28b and the rear wall member 22 which were formed in the supporter material 28 from the through tube 22b side, and screwing a wing nut 71 in it. 28g of falcation through tubes is formed in the supporter material 28, and while inserting screw 21k \*\*\*\*(ed) by the top face of the inclination-of-sagittal-condyle-path baffle plate 21 in 28g of this through tube, screw-less section 70a formed at the tip of a screw 70 in through tube 21b formed in the inclination-of-sagittal-condyle-path baffle plate 21 is inserted. And the inclination-of-sagittal-condyle-path baffle plate 21 and the \*\* network angle baffle plate 20 are attached in the supporter material 28 pivotable by screwing a nut

73 in screw 21k at the circumference of the axis of a screw 70.

[0084] 5) the installation of a BENETTO lift device -- \*\*\*\*\* -- although the example located in the inside between condylar balls 12 showed it with the gestalt of operation of drawing 1 , since the \*\* network lift device 15 of \*\*\*\*\* of other BENETTO lifts , the more , cannot but enlarge the adjustment include angle of a cam 16 the more it become inside , it be desirable to make it prepare in right behind [ of a condylar ball 12 ] or its outside , as shown in drawing 5 .

[0085] (a) What is shown in BENETTO lift 50mm mold drawing 15 shows the gestalt of other operations of this invention. That is, the difference of what was equipped with the same device as what was shown in drawing 1 , and was shown in drawing 1 is as follows. In addition, the cam side is made into V typeface, and the pin 25 is drawn out by the half so that the whole surface can be seen.

[0086] 31g of notches is formed in the back end section of the KONDAIRU member 31, and the back end section of the supporter material 28 can be faced now from a back end side. The graduation is given to 31g of notches, and the relative rotation to the KONDAIRU member 31 of the supporter material 28 can be known now by relation with the mark shown in the back end of the supporter material 28. Moreover, 13f of plates of a semicircle arc is attached in one, and 31f of projections is projected and formed in the side attachment wall of the KONDAIRU member 31 at the part which the KONDAIRU member 31 of the maxilla model member 13 adjoins. The graduation is given to 13f of plates, and the relative rotation to the maxilla model member 13 of the KONDAIRU member 31 can be known now by these projections [ graduation and 31f of projections ] relative relation.

[0087] Moreover, 13g of two overhang sections is formed in the back end section of the maxilla model member 13, and the pin 25 is attached in 13g of each overhang section in the condition of having projected caudad at it. The distance between the lower limits of the pin 25 prepared in 13g of overhang sections is about 50mm. This serves as the abbreviation half of the distance between the gnathocephalon balls 12. With this gestalt, although the larger one is stabilized by the distance between pins 25, if it arranges so that it may not interfere with KONDAIRU member 31 grade, the dimension of the back end section of the maxilla model member 13 tends to become large, and handling tends to become inconvenient. Then, the dimension of the back end section of the maxilla model member 13 was arranged inside the KONDAIRU member 31 grade, without seldom enlarging. In addition, distance between pins 25 may be enlarged and the gestalt of the operation is shown in drawing 16 and drawing 19 which are mentioned later.

[0088] (b) The gestalt of other operations is shown further, and BENETTO lift 70mm mold drawing 16 and drawing 17 form 13h of overhang sections further extended to the method of outside in 13g of overhang sections formed [ in / of this invention / drawing 15 ] in the back end section of the maxilla model member 13, and attach a pin 25 in the 13h of the overhang sections concerned similarly. Spacing between each pin 25 is about 70mm. In this example, the handling of a maxilla model member and coexistence of that stability can be aimed at.

[0089] (c) BENETTO lift 110mm mold drawing 19 is the operation gestalt which brought the pin 25 outside further rather than the condylar ball 12. Although stability also tends to move the articulator well, only a long part is troublesome at the time of adjustment.

[0090] 6) Although the pin 25 is arranged with the include angle of about 45 degrees to a horizontal plane with the gestalt of the way-that-should-be above-mentioned implementation of a pin 25, if about 45 degrees is rotated and the maxilla model member 13 is made to open wide in this case, the peripheral surface of a pin 25 cannot contact cam side 16b, and cannot open the maxilla model member 13 any more. If it is made to arrange where a pin 25 is stood perpendicularly closely as shown in drawing 18 , about about 90 degrees can be rotated and the maxilla model member 13 can be made to open wide. This very becomes easy to do the tuning of a prosthesis.

[0091] 7) Although the cam 16 with the cam side [ flat surface / as a part of lift device / in the gestalt of the above-mentioned implementation ] which is V gestalt of a cam is used, as long as it regulates migration of a pin 25, a cam side may not be flat and may be a V character-like angle type.

[0092] 8) Even if the pin of a maxilla member and the cam of a mandible member interchange under a top mutually, they attain the same purpose. It just asserted this by this application claim 2.

[0093] 9) The other accompanying (device a) tracer connection organization charts 19 attach the energization member 80 which was prepared in the maxilla model member 13 and which carries out press energization of the maxilla model member 13 so that it may state KONDAI Luvox 17 and the network angle baffle plate 20, the \*\*\*\*\* inclination baffle plate 21, and the rear wall member 22 may contact a

condylar ball 12 while attaching the tracer connection member 76 with which the gestalt of other operations is further shown and this invention connects a tracer.

[0094] Namely, 13f of overhang sections longer than drawing 16 is formed in the back end section of the maxilla model member 13. By \*\*\*\*(ing) the cap member 75 to the point of 13f of this overhang section, enabling free attachment and detachment, and screwing a screw 78 in screw hole 75a formed in the other end of this cap member 75 Along with slot 76a which could rock the tracer connection member 76 freely centering on the screw 78, and was formed in the tracer connection member 76, it connects possible [ a slide ]. The connection section 79 with which a tracer is connected is formed in the tracer connection member 76. And it arranges so that it may be mostly located on the line by which a screw 78 is loosened and the connection section 79 of the tracer connection member 76 passes along the core of a condylar ball 12, and a screw 78 is fixed in total.

[0095] (b) 11f of lobes prolonged back is formed in the center of the back end section of beam section 11a, and end 80a of the energization member 80 which is the flat spring which carried out the shape of radii is connected with the inferior surface of tongue which is 11f of this lobe with a screw 81, and make other end 80b of the energization member 80 have engaged with Ayabe of through tube 13k formed in the maxilla model member 13, as shown in a vertical coupling device, drawing 19 , and drawing 20 . The maxilla model member 13 is caudad energized by the energization member 80. As shown in the two-dot chain line of drawing 20 , when it is going to open the maxilla model member 13 here for adjustments to denture, it bends the energization member 80 touching Ayabe of through tube 13k, and closing motion of the maxilla model member 13 is permitted.

[0096] With the gestalt of this operation, a tracer (not shown) is connected with the connection section of the tracer connection member 76, and rocking etc. carries out the maxilla model member 13 based on the measurement result of having measured the motion of a living body's jaw beforehand, and it is used in order to make a motion of a living body's jaw reflect in the articulator. In addition, what formed the wall in the lateral surface of the supporter material 28, and protruded the connection section on this wall as structure for connecting a tracer may be used.

[0097] III. The function which the articulator as device 1 therapeutic device of resetting like a mandible must have, and the perfect repeatability articulator of this invention do not only stop at the reappearance equipment of a jaw movement, but are the present analysis apparatus, and are also prediction equipment which predicts the way a therapy should be. Therefore, considering being the diagnosis and therapeutic device which diagnoses how it must be treated, it is desirable to also carry the request matter to the articulator on clinical as a device. That is, \*\* condylar ball should enable it to extend in the vertical direction for the temporomandibular arthrosis.

[0098] \*\* Carry out as [ be / back movement / possible ].

[0099] \*\* A location can be reset all around on the mandible model member 10 for the location of a mandible.

[0100] \*\* Although the location of a mandible can be reset in three dimension by filling the above-mentioned \*\*\*\*, and it is a minute amount then, the inequality of the distance between condylar balls and the distance between KONDAI Luvox arises. In order to correct it, it is desirable that KONDAI Luvox 17 enables it to adjust to enable it migration and to adjust and the above four points towards the method of outside.

[0101] In addition, \*\*\*\*\* is explained below.

[0102] 2) At least a mandible explains the gestalt of claim 3 of this invention by a gestalt, the functional diagram 21 - drawing 25 about a resetting function.

[0103] Although the physical relationship of an up-and-down prosthesis is uncorrectable once it attaches a prosthesis in the conventional articulator list in the condition of only the gestalt of above-mentioned operation at the up-and-down jaw model members 13 and 10, there are not few cases where an obstetrical chin presentation must be corrected to the temporomandibular arthrosis and a list in cases, such as a condyle head and fracture of mandibular ramus, clinical [ actual ].

[0104] With the gestalt of this operation, closing, if , and restoring to need \*\*\*\*\* and an original obstetrical chin presentation also enables correction of an obstetrical chin presentation, without removing from the mounting plate which attaches a prosthesis in the jaw model members 13 and 10 of the upper and lower sides to such a case.

[0105] For that, the bottom (1) prosthesis model 90 Freely the frame side top of the mandible model



member 10 It can rotate [ a parallel displacement, ]. The height of an incisal guide pin (2) 23 can be adjusted [ (however, what is necessary is just to be able to move 7mm of cross directions, and 2mm of longitudinal directions as range which can be satisfied enough clinically), ], (3) What is necessary is just to satisfy three requirements for that the height of the condylar balls 12 and 12 on either side can be adjusted, and adjusting [ the distance between KONDAI Luvox 17 and 17 of the right and left which receive the condylar balls 12 and 12 on either side (3) ] \*\*.

[0106] What is necessary is for the shaft 32 of KONDAI Luvox 17 on either side just to enable it to adjust the location of those shaft orientations about (3) to bearing member 33a of the posterior part of the maxilla model member 13 that a condylar ball 12 should just be formed free [ height adjustment ] with a screw etc. to a pedestal 11 about \*\*\*\*\* among this requirement (2) as shown in drawing 21 .

[0107] moreover (2) -- \*\*\*\*\* -- the mounting plate 96 which is as the gestalt of operation of drawing 1 having explained, and attached the bottom prosthesis model 90 about (1) further -- plate 10f of the mandible model member 10 -- while preparing movable, it enables it to fix in a top

[0108] Namely, as shown in drawing 23 , the ellipse hole 97 is formed in plate 10f of the mandible model member 10. Although the ellipse column-like adapter 98 is fitted into this ellipse hole 97, and the mounting plate 96 which attached the bottom prosthesis model 90 on that adapter 98 is attached, and the fixed screw 99 is thrust into a mounting plate 96 and it fixes from the lower part of the mandible model member 10 After five positioning screws 100 which prepare various sizes of this adapter 98, were made to move in the proper direction in the ellipse hole 97, and were formed in plate 10f adjust the location of an adapter 98, As shown in drawing 24 , the fixed screw 99 is thrust into a mounting plate 96, and it fixes.

[0109] As this adapter 99 is shown in drawing 25 (a) and it is shown in adapter 98a which fits into the plate 10f ellipse hole 97 densely, and drawing 25 (b) As it fits in densely and die-length l before and behind that indicates adapter 98b shorter than the ellipse hole 97 order die length and drawing 25 (c) that only a cross direction is movable, the cross direction on either side The right-and-left width of face w is narrower than the width of face of the ellipse hole 97, and adapter 98c also with the short order die length l and versatility prepare beforehand, and it can justify by choosing suitably these adapters 98a, 98b, and 98c, in case a mounting plate 96 is fixed.

[0110] Moreover, the slot 106 which engages the positioning screw 100 with the projection 104 of the pair which fits into the hole 102 which inserts the fixed screw 99 in an adapter 98, and the hole 103 of a pair established in the mounting plate 96, and prevents the omission stop of an adapter 98 is formed.

[0111] b) the above structure -- \*\*\*\* which can reset -- by satisfying the requirements for this (1) - (3), it becomes possible to correct an obstetrical chin presentation.

[0112] It is shown typically that drawing 22 can pile up bottom prosthesis model 90L and top prosthesis model 92U which do not conform on the three above-mentioned condition.

[0113] supposing it piles up tripartite [ of bottom prosthesis model 90L ] (AL, BL, CL), and tripartite [ of top prosthesis model 92U ] (AU, BU, CU) now -- bottom (1) prosthesis model 90L -- plate 10f -- AU and AL can be made in agreement by making it slide in a top and adjusting the die length of an incisal guide pin 23

[0114] (2) having made AU and AL as in agreement -- bottom prosthesis model 90L -- plate 10f -- CU and CL can be made in agreement by making right KONDAI Luvox 17R go up and down, making it rotate in a top

[0115] (3) BU and BL can be made in agreement by making KONDAI Luvox 17L and 17R on either side go up and down, after AU and AL were in agreement and CU and CL have been in agreement.

[0116] (4) The distance between both condyle heads changes with actuation (3). (2) Although it can ignore clinically since this variation is very small, the adjustment device of KONDAI Luvox 17R and 17L on either side is given.

[0117] Thus, an obstetrical chin presentation can be corrected, without removing the up-and-down prosthesis models 90 and 92 from a mounting plate also in cases, such as a condyle head and fracture of mandibular ramus, in the temporomandibular arthrosis and a list by the ability of the superposition of the up-and-down prosthesis models 90 and 92 being adjusted.

[0118]

[Effect of the Invention] As explained above, in the perfect repeatability articulator of this invention, a jaw movement can be diagnosed, designed and carried out at the obstetrical chin presentation list which makes an ideal movement, especially occlusion movement of a living body's jaw in the clinical example which must



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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

- [Drawing 1] It is drawing showing the gestalt of 1 operation of the perfect repeatability articulator of this invention.
- [Drawing 2] It is the decomposition perspective view showing the important section of drawing 1 .
- [Drawing 3] It is the perspective view showing the II sectional view and screw in drawing 2 .
- [Drawing 4] It is drawing seen from [ in drawing 1 ] RO.
- [Drawing 5] It is the perspective view showing the important section of drawing 1 .
- [Drawing 6] It is the perspective view showing a motion of the condylar ball in KONDAI Luvox.
- [Drawing 7] It is a schematic diagram explaining adjustment of the BENETTO lift in KONDAI Luvox.
- [Drawing 8] It is the decomposition perspective view showing the gestalt of other operations of KONDAI Luvox of this invention.
- [Drawing 9] It is the perspective view showing the gestalt of other operations of drawing 8 .
- [Drawing 10] It is the perspective view showing the gestalt of other operations of drawing 8 similarly.
- [Drawing 11] It is the perspective view showing some components of drawing 10 .
- [Drawing 12] It is the perspective view seen from [ in drawing 11 ] Ha.
- [Drawing 13] It is a \*\*-\* view sectional view in drawing 10 .
- [Drawing 14] It is the decomposition perspective view showing the gestalt of further others of KONDAI Luvox in this invention.
- [Drawing 15] It is the perspective view of this invention showing the gestalt of other operations further.
- [Drawing 16] It is the top view of this invention showing the gestalt of other operations further.
- [Drawing 17] It is drawing seen from [ in drawing 16 ] HO.
- [Drawing 18] It is drawing showing the important section of the example of further others of this invention.
- [Drawing 19] It is the decomposition perspective view of this invention showing the gestalt of other operations further.
- [Drawing 20] It is the sectional view showing the important section of drawing 19 .
- [Drawing 21] It is the whole this invention perspective view the gestalt of other operations is shown [ whole ] further.
- [Drawing 22] It is a mimetic diagram explaining the superposition of the vertical prosthesis model in drawing 21 .
- [Drawing 23] It is the perspective view showing the detail of the mandible model member of drawing 22 .
- [Drawing 24] In drawing 22 , it is an important section sectional view when attaching a bottom prosthesis model in a mandible model member.
- [Drawing 25] It is drawing showing the detail of the adapter in drawing 23 .
- [Drawing 26] It is drawing showing a living body's mandible.
- [Drawing 27] It is drawing showing movement of a mandible.
- [Drawing 28] It is drawing for explaining the vocabulary on dentistry.
- [Drawing 29] It is drawing which modeled movement of a mandible.
- [Drawing 30] It is drawing showing the direction of movement at the time of seeing a mandible from a sagittal plane.
- [Drawing 31] It is drawing showing the movement direction at the time of seeing a mandible from the upper part of the occlusal surface.

[Drawing 32] It is drawing showing the device of the outline of the conventional articulator.

[Drawing 33] It is an explanatory view in case KONDAI Luvox of the conventional articulator performs a BENETTO lift.

[Description of Notations]

10 Mandible Model Member

11 Pedestal

12 Condylar Ball

13 Maxilla Model Member

15 BENETTO Lift Device

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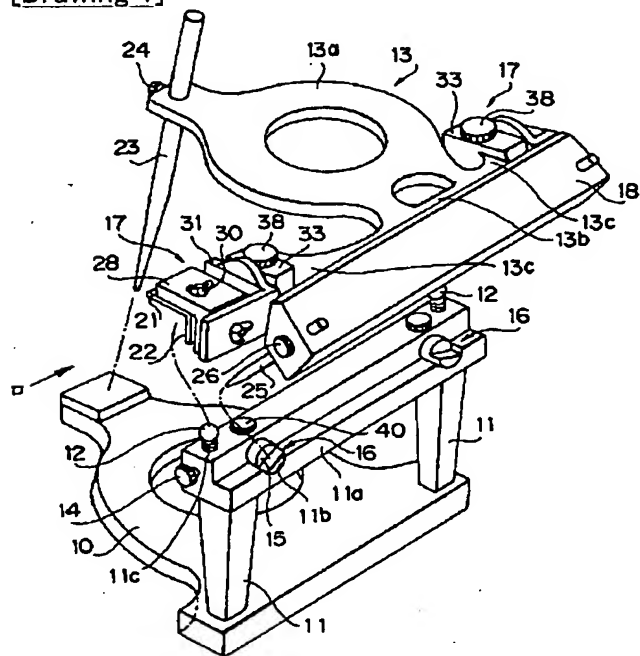
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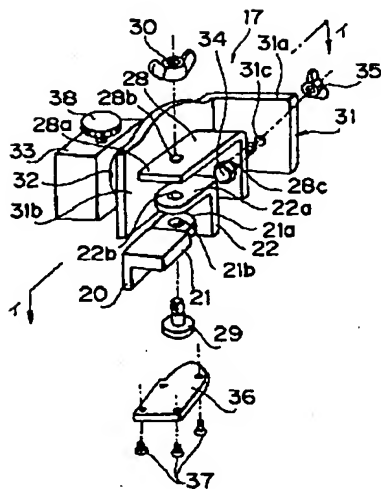
DRAWINGS

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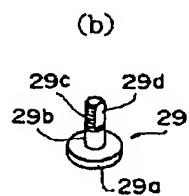
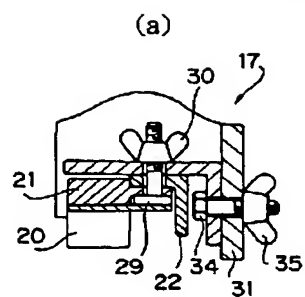
[Drawing 1]



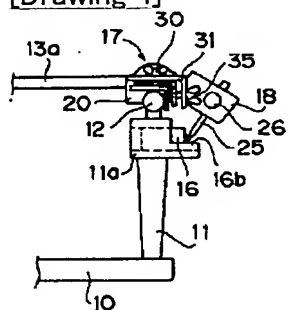
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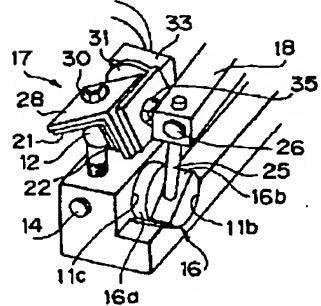
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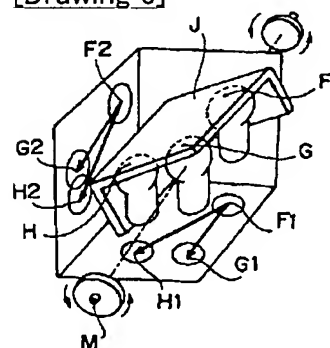
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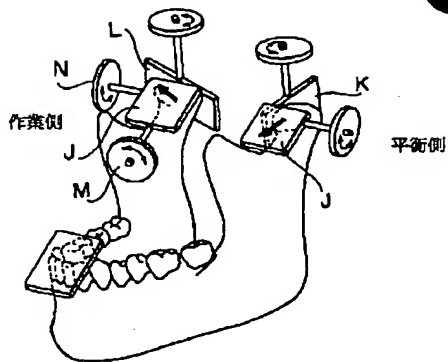
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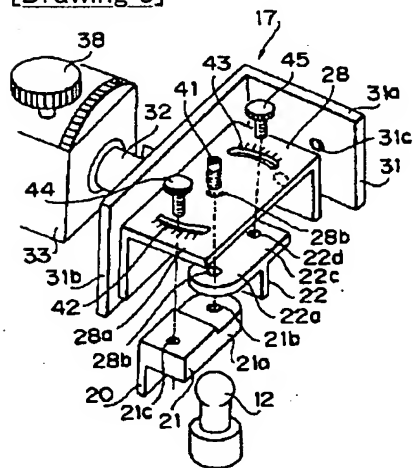
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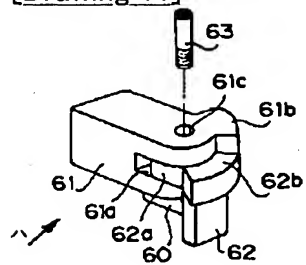
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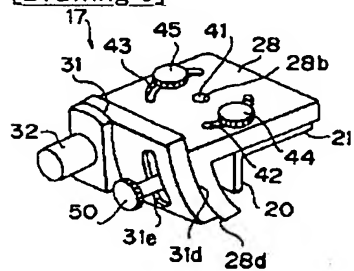
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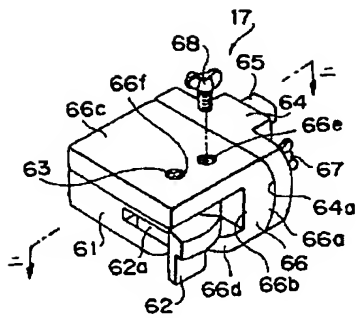
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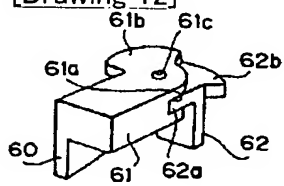
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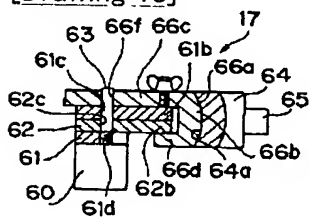
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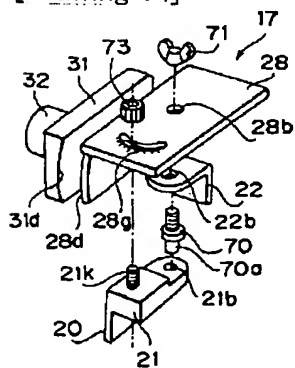
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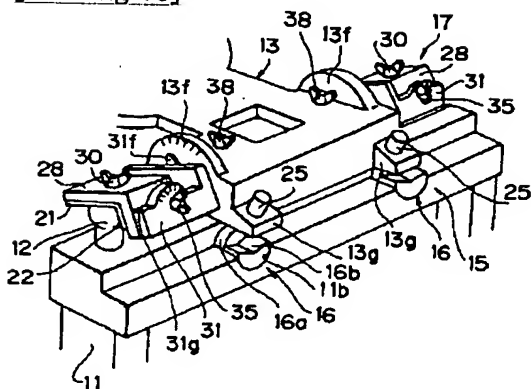
[Drawing 13]



[Drawing 14]

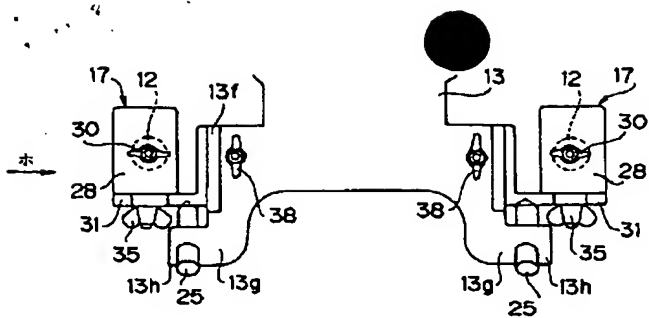


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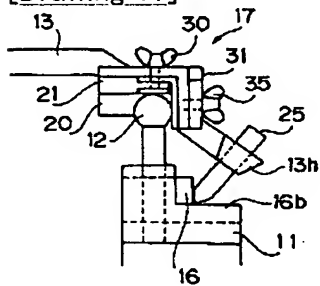


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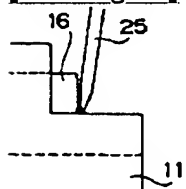




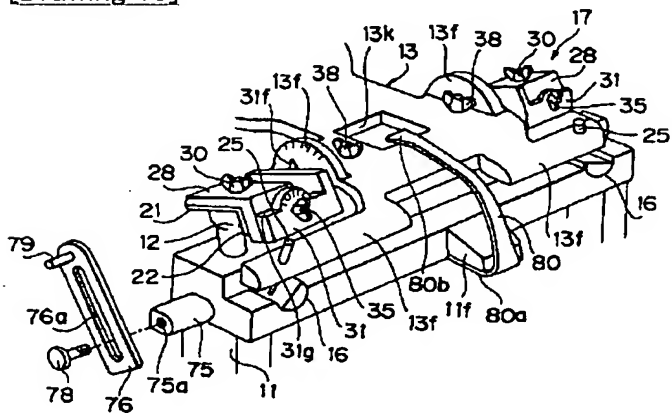
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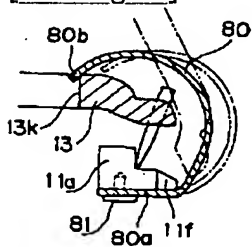
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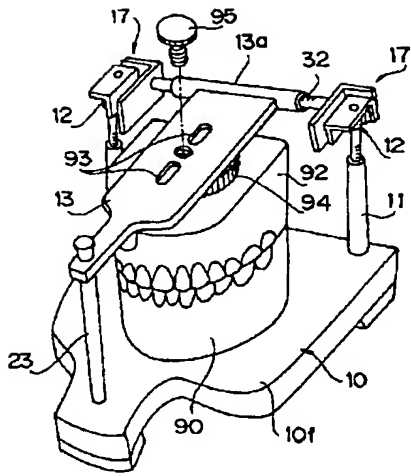
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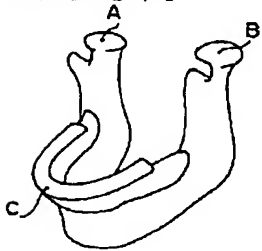
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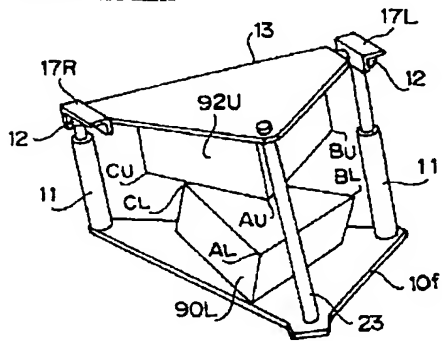
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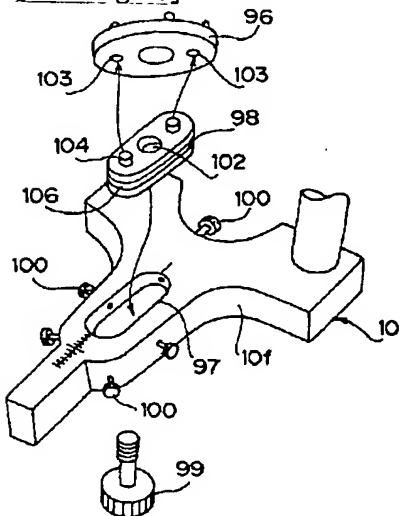
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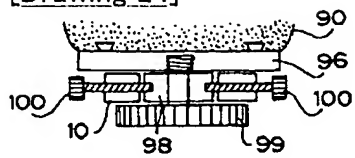
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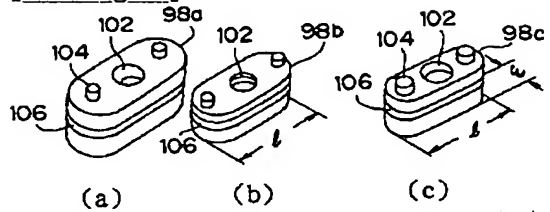
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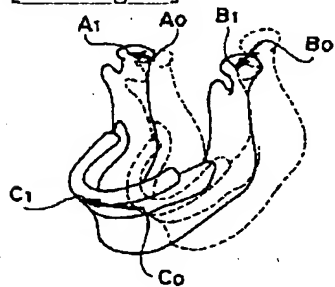
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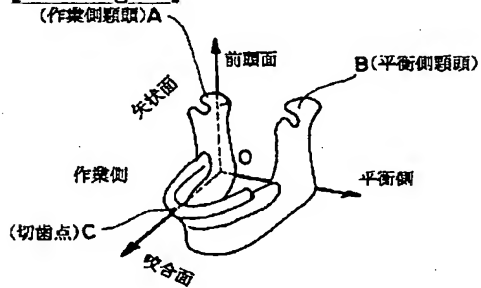
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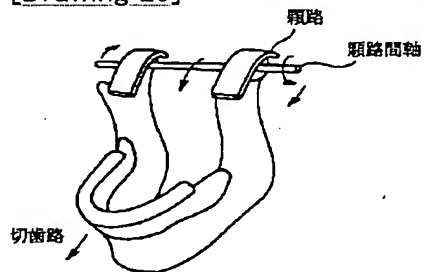
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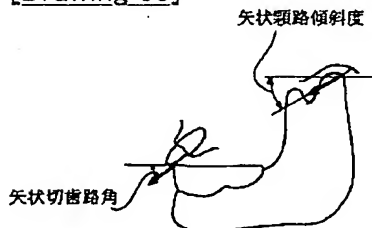
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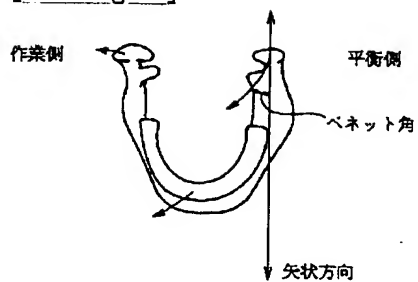
[Drawing 29]



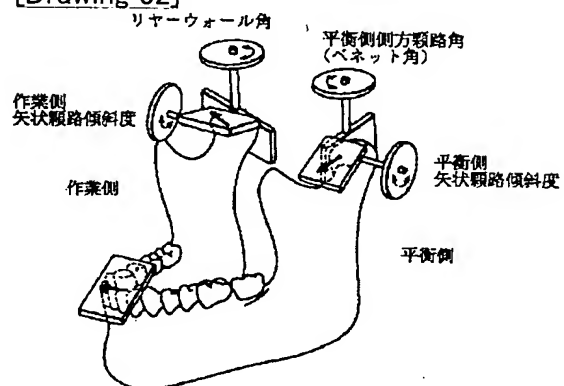
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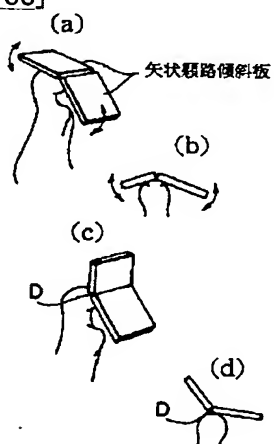
[Drawing 31]



[Drawing 32]



[Drawing 33]



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